Open Questions in Glass Relaxation

Invited Talk

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Abstract:
Being out-of-equilibrium materials, glasses continuously relax toward the supercooled liquid or crystalline states. However, despite the practical importance of glass relaxation (e.g., for the manufacturing of LCD/OLED screens), the nature of glass relaxation still remains one of glass science's mysteries. Various questions remain answered: (i) What is the atomic mechanism of glass relaxation? (ii) What is the physical origin of the stretched-exponential nature of relaxation? (iii) How do composition and structure control the thermodynamic propensity and kinetics of glass relaxation? (iv) What is the origin of the controversial intermediate phase, wherein glasses are expected to show weak relaxation? Here, we review recent experimental and computational advances in the understanding of glass relaxation. We place a special focus on the origin of the mixed modifier effect and the role of the network topology in controlling relaxation.